

Application No.:10/050,201

IN THE SPECIFICATION:

Please replace paragraphs [0008], [0011], [0012] and [0013] of the as-published application with the following revised paragraphs:

[0008] Some of these approaches deal with the use of the available key set of the particular device, e.g., the 3.times.4 standard telephone keyboard (the '980 and '317 patents), video game controllers (the '818 patent), pagers (the '312 patent), television channel remote controllers (the '115 patent), etc. Some of these and others use ~~ersers~~ cursors moved by mouse or up-down and left-right ~~er~~ cursor movement keys to scroll through displayed characters (the '117, '471, '351, '541 and '542 patents) or to scroll characters through a character position of a word (the '115 patent) and to select the proper character when it is in the position using a keystroke or mouse click or a pen applied against the displayed or highlighted character.

[0011] Thus, up to now, character keystrokes have been distinguished primarily by physical position. Every unique character is represented by a unique location of a key of a fixed hard or soft (displayed) keyboard. The user specifies or selects a character by directly pressing a key at a location on the keyboard that is associated with that character or by indirectly selecting via a ~~er~~ cursor or pressing a pen against a soft key displayed on a screen as described above. Alternatively, as described in certain alternative approaches using fewer entry keys than characters, the user scrolls through software generated and displayed characters and makes a selection when the desired character is presented. There remains an unmet need for improvements in data entry employing a minimum number of character entry keys that increase speed, accuracy, and user convenience.

[0012] Data entry keyboards are devised in accordance with the present invention that combine a spatial distribution of characters to be selected and entered with 3 a time variable. The present invention introduces time as a keyboard variable whereby characters are presented for selection in display windows for discrete display time periods, and users rely upon hand-eye coordination and trainable manual dexterity of the of the user to "grab" the displayed characters on the fly or as quickly as possible. Secondly, keyboards in accordance with the present invention comprise multiple display windows in which character sets of a defined character group are simultaneously displayed. Each character set is presented for selection in a display

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window for discrete display time periods either automatically or by user advancement. In the automatic scrolling mode, as experience is gained, the user anticipates the presentation of characters of each subset in each display window. Thus, the full collection of characters is presented in space and in time to reduce the time between character selection, and speed and accuracy of data entry are increased.

[0013] Although the above two ideas are separate, they are preferably combined to enable a fast and accurate means to select and enter characters using fewer keys than there are unique characters of the character collection. In such a system, character groups of a character collection comprising an alphabet and/or set of numerals and/or symbols and/or punctuation marks are defined. Each character group of characters is repetitively scrolled though a display window for that character group, whereby individual characters of the character group appear in the display window for a brief display time. All the characters that make up an individual character group are assigned to one display window that cycles through each character of the character group over time. Each character group of characters gets a character display window, so there are as many display windows as there are character groups, and a selection key is assigned to each display window. The selection key associated with the particular character display window containing that character is pressed or selected by a cursor or any other suitable way by a user at the same time that the desired character is displayed in that display window, and the selected character is entered as data input.